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### (54) Method and apparatus for reducing cross talk using line coding

(57) To accommodate the overlay of broadband information over narrowband signals while reducing cross-talk in upstream and downstream directions, different baseband line codes are used to modulate respective upstream and downstream transmissions on a common wireline communication resource, such as a twisted copper-pair. In this way, filtering components located at each end of a connection can reject cross-talk based upon dissimilar signal characteristics that arise between wanted broadband signals having a first baseband line code and spectrally-shifted cross-talk emanating from interfering broadband signals having a different baseband line code.

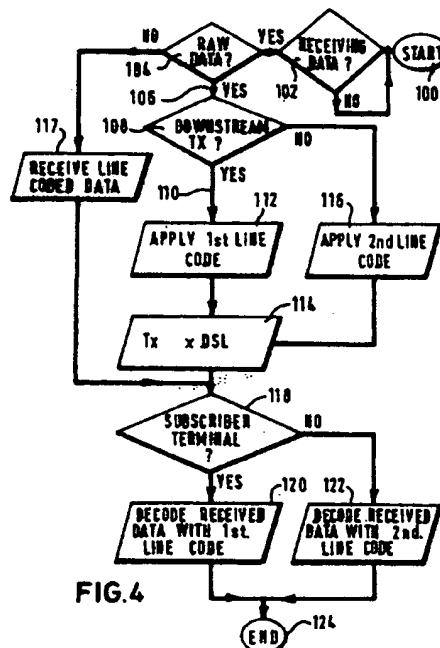


FIG. 4

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# EUROPEAN SEARCH REPORT

Application Number  
EP 98 30 9092

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X	US 5 680 394 A (TONG PO ET AL) 21 October 1997 (1997-10-21) * abstract; claims 1,5,6,11-13,20; figure 6 * * column 1, line 39 - line 61 * * column 2, line 9 - line 26 * * column 3, line 8 - line 21 * * column 3, line 28 - line 35 * * column 5, line 24 - line 44 * * column 7, line 43 - line 67 * * column 8, line 48 - column 9, line 11 * ---	1-30	H04L5/02
X	US 5 515 378 A (OTTERSTEN BJORN ET AL) 7 May 1996 (1996-05-07) * column 1, line 18 - line 47 * * column 7, line 27 - line 32 * * column 9, line 15 - line 31 * * column 9, line 43 - column 10, line 10 * * column 24, line 62 - column 25, line 7; claims 3,4,7 * ---	1-30	
X	WO 97 06619 A (TELIA AB ; ISAKSSON MIKAEL (SE)) 20 February 1997 (1997-02-20) * abstract; claims 1,2,4,7 * * page 1, line 10 - line 19 * * page 2, line 28 - line 38 * * page 3, line 25 - line 32 * * page 4, line 27 - line 30 * * page 6, line 2 - line 11 * * page 6, line 31 - page 7, line 7 * --- -/--	1-30	<p>TECHNICAL FIELDS SEARCHED (Int.Cl.6)</p> <p>H04L</p>
The present search report has been drawn up for all claims			
Place of search <b>BERLIN</b>		Date of completion of the search <b>15 August 2001</b>	Examiner <b>Binger, B</b>
<p>CATEGORY OF CITED DOCUMENTS</p> <p>X : particularly relevant if taken alone Y : particularly relevant if combined with another document of the same category A : technological background O : non-written disclosure P : intermediate document</p> <p>T : theory or principle underlying the invention E : earlier patent document, but published on, or after the filing date D : document cited in the application L : document cited for other reasons &amp; : member of the same patent family, corresponding document</p>			

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Application Number  
EP 98 30 9092

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			TECHNICAL FIELDS SEARCHED (Int.Cl.6)
The present search report has been drawn up for all claims			
Place of search BERLIN		Date of completion of the search 15 August 2001	Examiner Binger, B
CATEGORY OF CITED DOCUMENTS X : particularly relevant if taken alone Y : particularly relevant if combined with another document of the same category A : technological background O : non-written disclosure P : intermediate document T : theory or principle underlying the invention E : earlier patent document, but published on, or after the filing date D : document cited in the application L : document cited for other reasons & : member of the same patent family, corresponding document			

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